

### **REMARKS**

Prior to the present amendment, claims 34-67, 69 and 70 were pending. All claims have been rejected. After the present amendment, claims 34, 35, 37-51, 53-67, 69 and 70 are pending.

### **AMENDMENT**

Claims 34 and 50 have been amended to recite that the meat has a grading color of a dark burgundy/purple, and that the amount of pH-lowering agent is sufficient to lower the pH and to lighten the color from the grading color of a dark burgundy/purple to a red color.

The specific identification of color is supported in the original specification at page 3, line 10, and in previously presented claims 36 and 52.

Claims 36 and 52 are canceled in favor of this amendment.

It is respectfully submitted that the above amendment is clearly supported by the original disclosure and simplifies issues for further consideration.

Additionally, the subject matter of the amended claims has been previously presented for consideration by the Examiner in the form of a dependent claim, and so no new issues are raised.

Entry of this amendment is therefore earnestly solicited.

### **CLAIM REJECTIONS 35 USC § 103**

Claims 34-38, 43, 45-54, 59-60, 62-67, 69 and 70 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Neraal (GB 968331) in view of Wulf (J. Anim. Sci. 2002).

As discussed in the background section of the present application, carcasses presenting muscles that are dark in appearance are commonly referred to in the art as "dark-cutting," "dark-cutters," or "dark, firm, and dry (DFD)." Dark-cutting carcasses yield meat that commands a substantially lower price than meat from non-dark-cutting

carcasses because consumers identify the appearance of muscles from dark-cutting carcasses as unappealing and unwholesome, even though palatability characteristics and wholesomeness of meat from dark cutting carcasses is not different from meat derived from carcasses presenting a normal red color.

The present application explains that dark-cutting meat occurs as a result of stressors on the animal, such as management practices, weather, feeding, illness or transportation, that result in depleted muscle glycogen levels before slaughter. When such stress occurs, muscles lack the glycogen quantities necessary to reduce the pH of muscles to normal postmortem levels (pH -5.5 to 5.8) and have high final pH's (>6.2).

The present claims are drawn to a method that operates to rehabilitate dark cutter meats. Thus, as a first step in the present claims, meat is identified in a dark-cutting carcass by evaluating grading pH and color. By definition, meat is always graded after onset of rigor mortis. See paragraph [0021] of the present published application. If the meat is a dark cutter meat, the meat is treated with an amount of at least one pH-lowering agent sufficient to lower the pH and to lighten the color from the initial grading color

The claims have been amended to recite that the meat has a grading color of a dark burgundy/purple, and that the amount of pH-lowering agent is sufficient to lower the pH and to lighten the color from the grading color of a dark burgundy/purple to a red color. It is respectfully submitted that the claims very clearly distinguish over the cited prior art of record.

The Neraal reference does not relate to dark cutter meats, and so the first step of the present invention of identifying a dark-cutting carcass is not carried out. Further, the second step of treating a dark-cutting carcass also is not carried out, because the meat that is treated by Neraal is not a dark cutter meat. Thus, Neraal does not describe a meat that has a grading color of a dark burgundy/purple, and required by the present claims.

This difference in the meat that is to be treated is apparent from the Neraal disclosure. Specifically, Neraal describes adding an additive that contains acid to stabilize the pH of meat to prevent color change of the meat from ordinary red to grey. See page 1, lines 66-76. Control of the pH is desirable to prevent oxidation of myoglobin into metamyoglobin, which leads to a grey color. See page 1, lines 39-50.

The meats that are treated by Neraal are not dark cutter meats, but rather are sausages having an “attractively red” color (see page 2, line 115) that are prepared as a mixture of beef, veal and bacon, seasoned with salt, spices and nitrite salt, that are only then treated with the glucose/mild acid additive to preserve the attractively red color and to avoid a grey color. See Example 1, page 2, lines 72-123. In the successful operation of the Neraal invention, the meat does not change color at all. This is in contrast to the requirement of the present claims.

Wulf is an article that provides some background discussion about dark cutter meats. One of the observations made in the introductory remarks of Wulf is that dark cutting beef results from lower than normal amounts of lactic acid production after slaughter and higher than normal ultimate meat pH. Wulf then states that the objective of the study is to determine the relationship between glycolytic potential (“GP”) and dark firm and dry (“DFD”) beef and to determine the effects of DFD status and GP on beef palatability. Wulf does not propose solutions to dark cutter issues, and does not suggest that treatment to reduce pH post rigor will affect color.

The skilled artisan would have had no reason to combine a reference discussing the treatment of sausage meat to prevent a color change (i.e. graying) with a reference studying the effects of DFD status and GP on beef palatability (i.e., a study that does not describe an effect on color at all), even though both references mention pH. This combination would not be made without reference to the present claims, and therefore the Office Action rejection is based on impermissible hindsight. This is particularly the case since Wulf describes a complex series of physiological observations regarding the state of meat that is dark cutter meat. There is no reason to expect that the condition of the meat could be reversed by selecting one of the conditions (pH) identified in Wulf and trying to counteract that single observation by administration of a pH lowering agent at a time not recognized to be significant in the prior art (post-rigor). The identification of treatment of this type of meat in this manner at this stage to achieve this result is invention. It is improper to stitch together references that mention the key words of meat and pH, and to

then assert that the treatment of this long-standing problem is now obvious because various elements are independently known.

The Office Action also makes the assertion that the lightening effect would have been expected to take place as an inherent result of the pH reduction treatment. This is not correct, because Neraal does not start with a dark cutter meat, and so there is no inherent lightening that can take place. In contrast, the meat that is treated in Neraal is specifically treated to avoid a color change of the meat. Thus, the combination of references fails because Neraal does not disclose the same starting material as in the present claims (see page 4 of the Office Action of July 6, 2011.)

The Final Rejection asserts on Page 3 that “Neraal recognizes the problems associated with coloring of meat when pH of meat is too high.” However, the meat product of Neraal is different from the present dark cutter meat, and the problem also is different (i.e. prevention of grey color that is caused by oxidation of myoglobin into metamyoglobin. See page 1, lines 39-50.). A reference that has as its object the prevention of a color change in one type of meat cannot make obvious an invention of effecting a color change in a different type of meat.

The Office Action also states that “the combination of references disclose the same starting materials and methods as instantly (both broadly and more specifically) claimed. This is not correct. As noted above, Neraal does not start with a dark cutter meat. A combination of these references is an artificial construction, and inherency does not apply because the indicated outcome does not automatically occur in all circumstances of even a hypothetical combination of references.

The Final Office Action asserts that Applicant’s examination and explanation of Neraal and Wulf are arguments against the references individually. It is respectfully submitted that in order to consider whether references teach the features asserted in the Office Action, it is necessary to at least initially discuss the individual references. The response filed on October 6, 2010 provides substantial discussion of the propriety of combination of these references based on their teaching. Thus, it is respectfully submitted that the obviousness rejection was properly addressed in that paper, and also in

the present response which explains the nature of the individual references for the purpose of showing why the respective teachings cannot be combined.

Reconsideration and withdrawal of this rejection is therefore respectfully requested.

Claims 39-42 and 55-58 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Neraal (GB 968331) in view of Wulf (J. Anim. Sci. 2002) and further in view of Formanek (US6,379,739).

Formanek, is cited for showing tumbling, injecting, marinating or drip/rest of meat. Formanek, however, does not bridge the gap between the present claims and Neraal in combination with Wulf. Reconsideration and withdrawal of this rejection is therefore respectfully requested.

Claims 44 and 61 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Neraal (GB 968331) in view of Wulf (J. Anim. Sci. 2002) and further in view of Holdren et al. (U.S. Patent No. 5,736,186, col. 6).

Holdren is cited in the above rejection for its teaching of use of encapsulated materials in curing meats. It is noted that this reference provides no teaching or suggestion about treating a dark-cutting meat to lighten the color of the meat after it has been graded.

Reconsideration and withdrawal of this rejection is therefore respectfully requested.


### **CONCLUSION**

In view of the above remarks and amendments, it is respectfully submitted that the foregoing is fully responsive to the outstanding Office Action. Early favorable consideration and allowance of the above application is earnestly solicited. In the event that a phone conference between the Examiner and the Applicant's undersigned attorney

would help resolve any issues in the application, the Examiner is invited to contact said attorney at (651) 275-9811.

Respectfully Submitted,

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